

10.) $\vec{E}_0 = 100 \vec{j} \frac{V}{m}$ $f = 10^7 \text{ Hz}$ $\vec{E}(\vec{r}, t) = ?$ $\vec{H}(\vec{r}, t) = ?$
 $\lambda = ?$ $k = ?$ $\omega = ?$ $T = ?$ $W_{EM} = ?$ ($\delta = 0$)

$S_0 = ?$

$W_{EM} = \frac{1}{2} \epsilon_0 E_0^2 = \frac{1}{2} \mu_0 H_0^2$

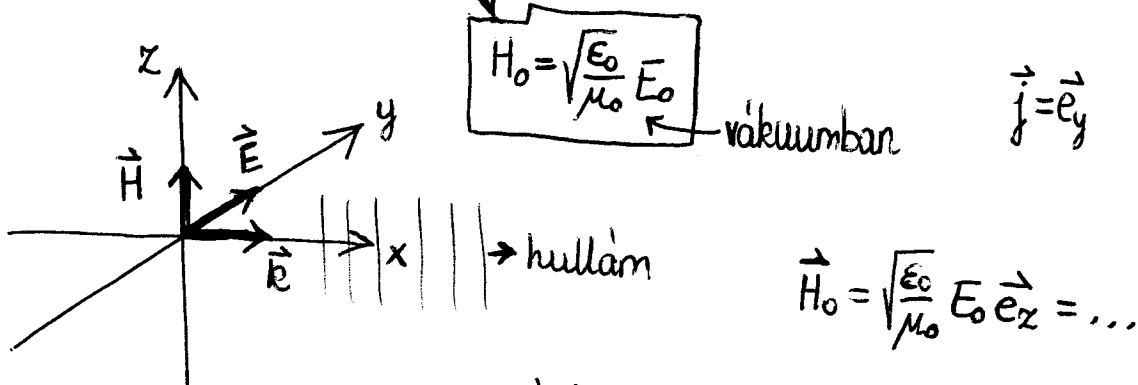
$\vec{S} = \vec{E} \times \vec{H}$

$c = f \lambda$

$k = \frac{2\pi}{\lambda}$

$\omega = 2\pi f$

$c = 3 \cdot 10^8 \frac{m}{s}$ $f = \frac{1}{T}$



$c = f \cdot \lambda \rightarrow \lambda = \dots$

$k = \frac{2\pi}{\lambda} = \dots$

$\omega = 2\pi f = \dots$

$T = \frac{1}{f} = \dots$

$W_{EM} = \frac{1}{2} \epsilon_0 E_0^2 = \dots$

$S_0 = E_0 H_0 = \dots$

$\vec{E} = E_0 \vec{j} \sin(\omega t - kx) = E_0 \vec{e}_y \sin(\omega t - kx) = \dots$

$\vec{H} = H_0 \vec{e}_z \sin(\omega t - kx) = \dots$